Program of the Tenth Symposium on Polar Meteorology and Glaciology, held at National Institute of Polar Research, Tokyo, December 8–9, 1987

I. Sea Ice

1. Rapid frazil ice production in coastal polynya: Laboratory experiments. Syuki USHIO and Masaaki WAKATSUCHI.
2. Measurements of airborne infrared brightness temperature of first-year sea ice in the sea of Okhotsk. Masaaki AOTA, Kunio SHIRASAWA, Masao ISHIKAWA, Syun-ichi IKEDA and Kohkichi SUEHIRO.
3. Step frequency radar experiments on the Antarctic sea ice. Seiho URATSUKA, Fumihiko NISHIO, Kenichi OKAMOTO, Hitoshi MINENO and Shinji MAE.

II. Ice Sheet and Radio Echo Sounding

1. Geomorphological and glaciological aspects around the highest dome in Queen Maud Land, East Antarctica. Yutaka AGETA, Kokichi KAMIYAMA, Fumio OKUHIRA and Yoshiyuki FUJII.
2. Dynamical characteristics of Shirase drainage basin, East Antarctica. Fumihiko NISHIO, Shinji MAE, Masayoshi NAKAWO, Syuhei TAKAHASHI, Kunio KAWADA and Hirokazu OHMAE.
3. Relation between reflection power from ice sheet bed and instability of ice sheet. Hirokazu OHMAE, Fumihiko NISHIO, Seiho URATSUKA and Kazuo OSADA.
4. Ice thickness profiles and subglacial relief in the central part of the Sør Rondane, Antarctica. L. de Vos and H. DECLEIR.
5. A comparison of ice thickness obtained by radio echo sounding and gravimetry in the Sør Rondane, Antarctica. H. DECLEIR, Fumihiko NISHIO and Hirokazu OHMAE.
6. A probing radar designed for simulation of radar echo of a meteorite within the ice sheet within the Antarctic continent (III). Mitsuo HOSHIYAMA, Akira NISHITSUJI, Fumihiko NISHIO, Makoto WADA and Okitsugu WATANABE.

III. Glaciological Study in Arctic Region

1. Glaciological characteristics of a core drilled on Jostedalsbreen, Southern Norway. Toshiyuki KAWAMURA, Takao KAMEDA, Kazuhide SATOW and Hiroyuki ENOMOTO.
2. Preliminary reconstruction of past environmental from Spitsbergen ice cores. Kokichi KAMIYAMA, Yoshiyuki FUJII, Okitsugu WATANABE, Sadao KAWAGUCHI, Toshiyuki KAWAMURA, Kazuhide SATOW, Kaoru IZUMI, Takao KAMEDA, Hiroyuki ENOMOTO, B. WOLD, J. O. HAGEN and Y. GJESSING.
3. Formation process of the glacier ice on an ice cap, Spitsbergen, Norway. Kaoru IZUMI, Toshiyuki KAWAMURA and Takao KAMEDA.
4. On air bubbles in ice core from Åsgårdfonna, Spitsbergen. Takao KAMEDA, Toshiyuki KAWAMURA, Yoshiyuki FUJII and Hiroyuki ENOMOTO.

IV. Ice Cores

1. Physical properties of Mizuho core and comparison with Byrd and Dye-3 ice cores. Hideki NARITA, Masayoshi NAKAWO, Nobuhiko AZUMA and Yoshiyuki FUJII.
2. Electric conductivity, microparticle concentration and past environmental changes. Yoshiyuki FUJII and Okitsugu WATANABE.
3. Temperature profile in a 700 m borehole at Mizuho Station, East Antarctica. Fumio OKUHIRA, Fumihiko NISHIO and Koichi IKEGAMI.
4. Dielectric properties of deep ice core with air inclusions. Shinji MAE, Toshinao KAGAMI and Takeo HONDOU.

5. The crystallographic structure and formation process of air hydrate crystals included in deep ice core. Takeo HONDOU, Hidenori ANZAI, Shinji MAE, Akira HIGASHI and C. C. LANGWAY, Jr.
6. Air porosity and total gas content of a shallow core from Antarctica. Takao KAMEDA, Masayoshi NAKAWO and Shinji MAE.
7. Vertical strain of the ice sheet at Mizuho Station obtained for the dating of the 700 m ice core. Masayoshi NAKAWO, Fumio OKUHIRA, Fumihiko NISHIO and Hirokazu OHMAE.
8. On the physical logging of 700 m borehole at Mizuho Station. Hirokazu OHMAE, Fumihiko NISHIO, Kazuhiko MORI, Fumio OKUHIRA, Kunio KAWADA, Masayoshi NAKAWO and Renji NARUSE.
9. Characteristics of creep of ice obtained from a 700 m deep borehole at Mizuho Station. Renji NARUSE, Fumio OKUHIRA, Hirokazu OHMAE and Kunio KAWADA.
10. Vertical movement of ice sheet at the Yamato bare ice field. Masayoshi NAKAWO, Masayasu NAGOSHI and Shinji MAE.
11. Age determination of volcanic ash in the ice of the Meteorite Ice Field near the Yamato Mts., East Antarctica. Takaaki FUKUOKA and Fumihiko NISHIO.

V. Discussions on Ice Core Studies

VI. Chemical Constituents in Deposited Snow
1. The distribution and chemical state of heavy metal elements in snow at S25 in Antarctica. Satoru KANAMORI, Nobuko KANAMORI, Eriko ISA, Kazuo OSADA, Fumihiko NISHIO, Okitsugu WATANABE and Masataka NISHIKAWA.
2. Chemical composition of snow drift in Mizuho Plateau. Kazuo OSADA, Hirokazu OHMAE, Fumihiko NISHIO, Keiji HIGUCHI and Satoru KANAMORI.
3. Chemical characteristic of surface snow in the inland of East Queen Maud Land, Antarctica. Kokichi KAMIYAMA and Yoshiyuki FUJII.
4. Estimation of oxygen isotope variation of ice sheet in the Last Ice Age. Kikuo KATO.

VII. Boundary Layer and Climate
1. Drag coefficient and micro-relief of the Antarctic Plateau. Jiro INOUE.
2. Climatic jump in the polar region (II). Tatsuya IWASHIMA, Ryozaburo YAMAMOTO and Makoto HOSHIAI.

VIII. Snow Crystal
1. Growth rate of ice crystals growing from the vapor phase. Takehiko GONDA and Shigeki NAKAHARA.
2. Sublimation process of snow crystals and aggregates of snow crystals. Akira YAMASHITA, Hiroyuki KONISHI, Wataru SHIMADA and Masayoshi MIYATAKE.
3. Doppler radar observation of snow particles in winter convective clouds. Hiroyuki KONISHI, Tatsuo ENDOH and Gorow WAKAHAMA.

Poster Session
1. Radar image processing of internal structure of snowpack. Masahiro SUZUKI, Masami SASAKI, Tadashi MATUMOTO and Kazuo FUJINO.
2. Improvement of automatic density measurements by γ-ray. Minoru MURAYAMA, Tadashi KIMURA, Okitsugu WATANABE, Yoshiyuki FUJII, Fumihiko NISHIO and Makoto WADA.
3. Characteristic features of bedrock topography in East Queen Maud Land, Antarctica. Fumihiko NISHIO, Hirokazu OHMAE, Seiho URATSUKA and Shinji MAE.
4. Radio scattering characteristics of Antarctic ice sheet by radio echo sounding data. Seiho URATSUKA, Fumihiko NISHIO and Hirokazu OHMAE.

5. On the simulation of radar echo intensity from the ice sheet in the East Antarctica (IV). Akira NISHITSUJI, Mitsuo HOSHIYAMA, Okitsugu WATANABE, Fumihiko NISHIO and Makoto WADA.
6. Isotope study of depositional environment in East Queen Maud Land, Antarctica. Hiroshi SATAKE, Kunio KAWADA, Takeshi TSUSHIMA and Nobuko SATO.
7. Chemical Stratigraphy of deposited snow. Fumihiko NISHIO, Kazuo OSADA and Keiji HIGUCHI.
8. Ice core drilling and *in situ* core analyses in Spitsbergen and Norway in 1987. Yoshiyuki FUJII, Okitsugu WATANABE, Sadao KAWAGUCHI, Toshiyuki KAWAMURA, Kazuhide SATOW, Kokichi KAMIYAMA, Kaoru IZUMI, Takao KAMEDA, Hiroyuki ENOMOTO, B. WOLD, J. O. HAGEN and Y. GJESSING.
9. Meteorological observation on Åsgårdfonna glacier in Spitsbergen. Kazuhide SATOW, Kaoru IZUMI, Hiroyuki ENOMOTO, Yoshiyuki FUJII and Sadao KAWAGUCHI.
10. A preliminary estimate of inertia effects in the bulk model of katabatic wind: Can katabatic winds crawl up a slope? Tokio KIKUCHI and Yutaka AGETA.
11. Measurement of snowflake size and falling velocity by image processing. Ken'ichiro MURAMOTO, Toru SHIINA, Tatsuo ENDOH and Koh'ichi KITANO.
12. Unusual retreat and recover of polar air mass over Mt. Chokai based on 8000-hour records of snow-soil boundary layers from two memory type thermometers during 1986/87. Iwao TSUCHIYA.
13. Seasonal variation of the molecular state of sulfate aerozol particles in the Antarctic atmosphere. Masahiko YAMATO, Yasunobu IWASAKA, Gong-Wang QIAN, Akira ONO, Fumihiko NISHIO, Masashi FUKABORI and Kikuo OKADA.
14. Gas-chromatographic measurements of atmospheric methane at Syowa Station between February 1986 and January 1987. Michio HIROTA, Masashi FUKABORI, Takashi YAMANOUCHI and Yukio MAKINO.
15. Upper stratospheric temperature profiles obtained by lidar measurements at Syowa Station, Antarctica. Akio NOMURA, Hiroshi KANZAWA and Tetsuo KANO.
16. Climatology of the Antarctic middle atmosphere. Hiroshi KANZAWA.

IX. Atmosphere Constituents

1. The test of marine aerozol sampling onboard the research vessel "SHIRASE". Masataka NISHIKAWA, Tsugio MIZOGUCHI, Satoru KANAMORI, Nobuko KANAMORI and Syuji AOKI.
2. Measurements of the atmospheric minor constituents at Syowa Station, Antarctica in 1986. Masashi FUKABORI, Yukio MAKINO, Masayuki TANAKA, Sadao KAWAGUCHI and Takashi YAMANOUCHI.
3. Molecular states and size distributions of sulphate aerosols measured in the marine atmosphere—from Japan to Antarctica. Masahiko YAMATO, Yasunobu IWASAKA, Gong-Wang QIAN, Akira ONO, Takashi YAMANOUCHI and Akimasa SUMI.
4. Methanesulfonic acid over the Antarctic Ocean. Seizi KOGA, Akira ONO, Yasunobu IWASAKA, Takashi YAMANOUCHI and Sadao KAWAGUCHI.

X. Antarctic Ozone

1. Annual change of ozone mixing ratio and potential temperature in the stratosphere over Antarctica. Shigeru CHUBACHI.
2. Descending motion of particles and its effect on Ozone Hole. Yasunobu IWASAKA, Kohji KAWAHIRA and Kouji KONDOH.
3. Temperature variation in the Antarctic stratosphere. Kouji KONDOH, Kohji KAWAHIRA and Yasunobu IWASAKA.
4. Diabatic air motion during Ozone Hole. Kohji KAWAHIRA, Yasunobu IWASAKA and Kouji KONDOH.

XI. Atmospheric Dynamics

1. Radiative-gravity wave equilibrium in the atmosphere: A possible origin of thermally direct meridional circulations in the Arctic and Antarctic troposphere. Manabu YAMANAKA.
2. Gravity wave activities over Syowa Station, Antarctica. Akio NOMURA, Yasunobu IWASAKA and Tetsuo KANO.
3. Low-frequency variation with zonal wavenumber in the southern hemisphere troposphere. Masato SHIOTANI.
4. A supression of polar stratospheric warming due to planetary wave saturation. Hiroshi TANAKA and Shinji USHIMARU.
5. Diffusion coefficients derived from the Lagrangian statistics. Koji YAMAZAKI.
6. Electric field associated with field-aligned current and the amplification of electron degradation processes in the stratosphere. Kyo SEKIHARA.